

RECREATION SITE EFFECTIVENESS EVALUATION PROJECT

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The Recreation Site Effectiveness Evaluation Pilot Project (RSEEWG) was designed to gather baseline information about the condition of recreation sites¹ throughout British Columbia, and to evaluate the effectiveness of recreation site management policies and practices. Specifically, the project addressed the following primary research question:

Are recreation sites across British Columbia meeting baseline standards for facilities and maintenance, and can they provide safe, sanitary, and environmentally sound recreation experiences?

This report summary presents a brief overview of the pilot project's findings, and a discussion about priorities for future maintenance and management of forest recreation sites in BC. It concludes with a short description of how the information and priorities identified in the project's final report (Ministry of Forests 2006) have been incorporated by the Recreation Program to date.

PROJECT OVERVIEW

The RSEEWG — under the auspices of the Forest and Range Evaluation Program (FREP) — developed a detailed project plan (Ministry of Forests 2004) and a Recreation Site Evaluation Field Form (Ministry of Forests 2006, Appendix 3) in early 2004. Field surveys were completed throughout the summer and fall of 2004.

1 In June 2005, the recreation sites and trails program (staff, budget, and legislation) was transferred from the Ministry of Forests and Range to the Ministry of Tourism, Sport and the Arts. Sites and trails were formerly referred to as "Forest Service recreation sites and trails" but are now simply referred to as "recreation sites and trails."



In the project plan, the RSEEWG identified four specific research objectives when it began the pilot project (Ministry of Forests 2004):

1. to assess the effectiveness of current management practices;
2. to compare the state of recreation sites in different Ministry of Forests and Range (MOFR) forest regions, and among different types of recreation sites: managed with fees (MWF), managed without fees (MWF), and user-maintained (UM);
3. to estimate the resources and infrastructure required to restore and/or maintain recreation sites to baseline ministry standards; and
4. to adjust the ministry formula for allocating recreation funds to forest regions, if required.

The FREP Mission:

To ensure British Columbia is a world leader in sustainable forest management by providing the high quality, science-based information we need for decision-making and continuous improvement of our forest practices, policies and legislation.

<http://www.for.gov.bc.ca/hfp/frep/index.htm>



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Although 1292 recreation sites are located across British Columbia, the survey population was restricted to recreation sites with vehicle access and overnight camping facilities (1187 sites). From these, a stratified simple random sample of 120 sites was selected for field evaluation.

To reflect the actual distribution of recreation sites across the province, sites were first stratified by MOFR forest region: 60 sites were in the Southern Interior Forest Region (SIR), and 30 in each of the Coast Forest Region (CFR) and Northern Interior Forest Region (NIR). These were further stratified by the three recreation site types: MWF (38 sites), MWO (36 sites), and UM (46 sites). The final stratification variable was site size: sites with < 20 vehicle units (small), and sites with > 20 vehicle units (large). Sites were allocated into one of these 18 strata, and results were pooled by either forest region or site type. Field data were collected between September and December 2004.

RESULTS

To make data analysis easier, results were grouped into five focus areas and more specific research questions were identified:²

1. **Site safety:** Are recreation sites safe?
2. **Sanitation:** Are recreation sites sanitary?
3. **Facilities and maintenance:** Are recreation sites meeting the ministry's baseline standards for facilities and maintenance?
4. **Environmental quality:** Are recreation sites posing risks to environmental quality?
5. **Site design:** Are recreation sites meeting the ministry's baseline standards for site design?

Overall, study results suggest that recreation sites are generally meeting the objectives of the Recreation Program and offering safe, sanitary, and environmentally sound recreation experiences to the public. At the individual site level, however, researchers identified several problems that require serious attention.

Site Safety

- Although natural hazards were found on only 7% of sites, 75% were not clearly identified through signage or other means.
- 68% of recreation sites had hazard trees requiring a full hazard tree evaluation.
- 53% of past wildlife danger tree hazard recommendations had not been carried out.

2 Adapted from Hull (2005).

Sanitation

- Human and domestic animal waste were found outside of toilet facilities on 9% and 20% of sites, respectively.
- Unsightly garbage was present on 90% of recreation sites, unsanitary garbage on 28% of sites, and broken glass on 51% of sites — dispersal was largely limited to a few occurrences per site.
- Of those sites with a shoreline, 51% had some garbage, glass, and/or hazardous waste on or near the shoreline.
- Human and/or domestic animal waste was found on 55% of recreation sites, with 6% of sites having waste spread uniformly throughout the site.

Facilities and Maintenance

- Over 25% of entrance signs, docks, wharves, and piers, fire rings, and kiosks were non-functional or below MOFR standards.
- About $85 \pm 15\%$ of docks, wharves, and piers require remedial works, with 40% needing to be removed or replaced.
- Across the province, more than half of tables ($58 \pm 9\%$), fire rings ($64 \pm 9\%$), and campsites ($55 \pm 10\%$) require some remedial work.
- Remedial work was required on $57 \pm 1\%$ of all in-site roads.
- The number of kiosks and directional signs will need to more than double to meet visitor needs.

Environmental Quality

- Moderate to high levels of rutting, ponding, or erosion were found on 34% of road systems/parking areas.
- The vast majority of recreation sites across the province (89%) had vandalized trees on an average of 15% of trees per site.
- Roots were damaged on 41% of recreation sites, and root/heart rot was identified on 17% of sites.
- Bark beetle infection was found on 36% of recreation sites across the province and 55% of sites in the NIR.



- Invasive species were identified on 20% of sites across the province, with diffuse knapweed and spotted knapweed the most common species.
- In the CFR, most sites (72%) had user-made trails leading to the shoreline; 33% of these require remediation.

Site Design

- Site design and layout were considered poor on 13 ± 9% of sites across the province, and on 17 ± 14% of user-maintained sites.

It is very difficult to judge in absolute terms whether site management is affecting site condition based on these study results; however, the results suggest that site management is benefiting the condition of recreation sites, and that a lack thereof may be detracting from a positive visitor experience (Table 1). UM sites performed the worst with respect to site sanitation (particularly the state of toilet facilities which are unlikely to be properly cared for by visitors), and had some clear safety issues as a result of hazard trees that need to be addressed. Furthermore, UM sites had the highest occurrence of invasive species, implying that a lack of site management may be beginning to affect forest health.

PRIORITY ACTIONS

Data from the pilot study provide valuable baseline information regarding the condition of recreation structures and facilities that is directly relevant to

infrastructure maintenance and replacement budget allocations. Results will continue to assist the recreation program in identifying key threats to safety, sanitation, and environmental quality.

The report recommends the following priority actions in each research area to help direct efforts and funding in the short and medium term.

Site Safety

- Post signs identifying natural hazards on sites with the highest visitor use levels.
- Develop a provincial “Hazard Tree Action Plan,” including a risk assessment of future bark beetle effects on tree death and recreation site safety.

Sanitation

- With partnership agreement holders, review maintenance schedules, beginning with all sites where garbage was spread uniformly throughout the site.
- Implement a visitor awareness campaign to inform recreation site users of the health risks and costs associated with on-site garbage disposal.

Environmental Quality

- Focus aspects of a visitor education campaign on risks to forest health, including the negative effects of tree vandalism and the spread of invasive species.
- With partnership agreement holders, begin volunteer days for removal of invasive species.

Table 1. Comparison of conditions on different recreation site types

Managed with Fees	Managed without Fees	User-Maintained
<ul style="list-style-type: none"> • largest number of sites with natural hazards present • with the exception of footbridges, has the safest site facilities • highest incidence of broken glass and garbage on the shoreline • highest proportion of sites with human waste outside of toilet facilities • lowest proportion of sites with significant pest infestation • lowest level of ponding, rutting, and erosion on the road system/parking area, trails, and campsites • highest incidence of tree vandalism and root damage • highest proportion of sites with trails leading to the shoreline • best overall site design 	<ul style="list-style-type: none"> • least amount of all types of garbage • with the exception of footbridges, has the most unsafe facilities • cleanest and best-maintained toilets • least tree vandalism and root damage • highest levels of trail erosion • highest proportion of user-made trails to the shoreline requiring remediation • all docks, wharves, and piers require remedial works 	<ul style="list-style-type: none"> • all on-site hazards are poorly identified • highest incidence of hazard trees requiring full evaluation, and of incomplete hazard tree removal • highest incidence of on-site unsightly and unsanitary garbage • highest proportion of sites with human and/or animal waste outside of toilet facilities, and improper grey water disposal. • worst toilet conditions (i.e., cleanliness and odour) • highest levels of trail erosion on road system/parking area and campsites • highest incidence of all invasive species studied • greatest proportion of sites with poor site design and poorly defined campsites

- Establish semi-permanent erosion monitoring plots in some high traffic areas to pilot evaluation techniques for assessing rates of on-site erosion and vegetation damage.

Facilities and Maintenance

- Set priorities for allocating infrastructure replacement funds including toilet facilities, docks, wharves, and piers, fire rings, directional and entrance signs, and kiosks.

The project yielded some valuable lessons in terms of effective survey design and information collection. New and more objective data collection methods still need to be considered. Thresholds or acceptable limits need to be developed to quantify or calibrate survey results before any future studies are conducted. For example, what characteristics or indicators, when combined, make a site “unsafe”?

Due to very high infrastructure repair and replacement costs, the report highlights a need for an increased allocation of resources to keep the current number of recreation sites across the province open, and functioning in a safe, sanitary, and environmentally sound manner. Alternatively, amendments to maintenance standards could be considered, or those sites that are in the worst condition may need to be shut down. Finally, baseline maintenance standards, not available for all facilities evaluated in this study, need to be established before future evaluations are completed.

CLOSING THE LOOP: WHAT HAS CHANGED FOLLOWING THIS STUDY?

In June 2005, the recreation sites and trails program (staff, budget, and legislation) was transferred to the Ministry of Tourism, Sport and the Arts. This move combined several recreation and tourism programs into a single agency and adopted a more holistic approach to tourism and recreation management. Sites and trails are now no longer referred to as Forest Service (FS) recreation sites and trails but simply recreation sites and trails.

The district recreation staff (18) now manage recreation sites and trails (and other public recreation issues on Crown land) full time. Previously, staff worked part time in recreation. The recreation staff continue to work out of FS offices but some staff are now responsible for significantly larger areas.

In 2005/06, a multi-year capital program began investing \$1.3 million per year to upgrade 39 recreation sites managed under partnership agreements. In addition, the operations budget was increased by \$1 million in 2006/2007 to begin a 5-year program of upgrading at

user-maintained sites and trails and deliver scheduled maintenance.

Information and priorities in the report helped to manage recreation sites and trails as follows:

- justify requests to government for additional funds;
- allocate operational and capital funding;
- assist in developing a project plan/ proposal to mitigate mountain pine beetle damage submitted to Natural Resources Canada for federal funding; and
- assist in updating Recreation Sites inspection forms.

At the Site & Trail program goals and budget meeting in February 2007, the recreation program will consider evaluating recreation sites again in 2007/08 using the simplified Recreation Sites inspection form. We will also discuss opportunities to market recreation sites with Tourism BC in 2007.

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MORE INFORMATION

For additional information on FREP, please refer to our website at <http://www.for.gov.bc.ca/hfp/frep/index.htm>.

*The FREP Report Summary is a regular publication of the **Forest and Range Evaluation Program** designed to inform stakeholders on program development and implementation, and report on the results of evaluation projects.*